BRUHATH BANGALORE MAHANAGARA PALIKE

Name of the Agency : **Mr. H.S. Nataraj,** Contractor, Bangalore.

Name of the Work : Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.

Estimate Cost : Rs.

QUALITY CONTROL REPORTS TO

Asst. Executive Engineer,
Kodigehalli Sub Division,
BBMP, Bangalore.

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Basaveshwaranagar, Bangalore – 560 079.

QUALITY CONTROL REPORTS FOR

WET MIX MACADAM(WMM)

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Job No.: CTCE/BBMP/HSN/WNo.07/WMM/Gradation/2014-15

04.08.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Mr. H.S. Nataraj,** Contractor, Bangalore.

Name of Work : Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011

Date of Testing : 04.08.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7610**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	325	325	4.3	95.7	95-100
22.4	2625	2950	38.8	61.2	60-80
11.2	1230	4180	54.9	45.1	40-60
4.75	685	4865	63.9	36.1	25-40
2.36	1045	5910	77.7	22.3	15-30
0.600	760	6670	87.6	12.4	8-22
0.075	585	7255	95.3	4.7	0-8

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Job No.: CTCE/BBMP/HSN/WNo.07/WMM/AIV/2014-15

04.08.2014

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	04.08.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	299	
4	Aggregate Impact value = percent fines	21.32	21.93	
	100* (W_2/W_1)%			21.62

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/HSN/WNo.07/WMM/S-T/2014-15 04.08.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP,
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	04.08.2014

Result : Flakiness Index = **11.15%**

Elongation Index = **13.28%**

Result : Combined Flakiness & Elongation index **24.43%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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QUALITY CONTROL REPORTS FOR

SEMI DENSE BITUMINOUS CONCRETE

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Job No.: CTCE/BBMP/HSN/WNo.07/QB(SDBC)/2014-15 18.08.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
SAMPLE ID	:	Bitumen
DATE OF TESTING	:	18.08.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	82	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	290	Min. 220

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/AIV/2014-15

18.08.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	18.08.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	299	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.52	22.34	**21.93**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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18.08.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	18.08.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.41	22.08	21.74

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/Shape_T/2014-15 18.08.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	18.08.2014

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.42%**

Elongation Index = **13.16%**

Result : Combined Flakiness & Elongation index **24.58%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	18.08.2014

Result : Flakiness Index = **11.62%**

Elongation Index = **13.45%**

Result : Combined Flakiness & Elongation index **25.07%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/Stripping/2014-15 20.08.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	20.08.2014

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	2.5	2.67	97.33
2	2.7		
3	2.8		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/HSN/WNo.07/Sp_Wa/2014-15 20.08.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	20.08.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2012	2012	2014	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1257	1257	1259	
4	Weight of saturated surface dry aggregate in air	W_3 g	2007	2011	2014	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	754	755	
6	Weight of oven dried aggregate	W_4 g	1996	1997	1998	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.661	2.649	2.646	2.652
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.701	2.699	2.704	2.701
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.55%	0.70%	0.80%	0.68%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/Bitumen/2014-15 20.08.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
SAMPLE I/D	Roads in Sahakaranagara G Block, Ward No. 7
DATE OF TESTING	20.08.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475.5	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24.50	25.50
7. Bitumen content in %	4.90	5.10
8. Average	**5.00**	

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/Gradation/2014-15 20.08.2014

BITUMEN GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
SAMPLE I/D	Roads in Sahakaranagara G Block, Ward No. 7
DATE OF TESTING	20.08.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.63	5.39	5.39	94.61	90-100
4.75	258.74	54.41	59.80	40.20	35-51
2.36	61.64	12.96	72.77	27.23	24-39
1.18	45.78	9.63	82.40	17.60	15-30
0.3	28.23	5.94	88.33	11.67	9-19
0.075	30.58	6.43	94.76	5.24	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	27.45	5.79	5.79	94.21	90-100
4.75	266.35	56.13	61.92	38.08	35-51
2.36	54.82	11.55	73.47	26.53	24-39
1.18	31.94	6.73	80.20	19.80	15-30
0.3	27.36	5.77	85.97	14.03	9-19
0.075	36.87	7.77	93.74	6.26	3-8

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Job No.: CTCE/BBMP/HSN/WNo.07/SDBC/AGG/2014-15

20.08.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting roads and drains at Sahakara Nagara G Block, 9th Cross Road in Ward No. 7, Byatarayanapura, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/137/2011-12 Dated: 14.10.2011
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	20.08.2014

Total Weight of Sample: **5600** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	475	8.5	8.48	91.52	90-100	
4.75	2964	52.9	61.41	38.59	35-51	
2.36	724	12.9	74.34	25.66	24-39	
1.18	459	8.2	82.54	17.46	15-30	
0.3	384	6.9	89.39	10.61	9-19	
0.075	324	5.8	95.18	4.82	3-8	

Total Weight of Sample: **5550** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	460	8.3	8.29	91.71	90-100	
4.75	2856	51.5	59.75	40.25	35-51	
2.36	762	13.7	73.48	26.52	24-39	
1.18	438	7.9	81.37	18.63	15-30	
0.3	348	6.3	87.64	12.36	9-19	
0.075	408	7.4	94.99	5.01	3-8	

Note:

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Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.07/HSN/WMM/Gradation/2014-15

07.08.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Mr. H.S. Nataraj,** Contractor, Bangalore.

Name of Work : Improvements to Asphalting roads and drains at Sahakaranagara G Block, 9th Cross Roads in Ward No. 07, BBMP, Bangalore.

Reference : AEE/(KOD.SUB.DIV)/ /2014-15 Dated: 04.08.2014

Date of Testing : 07.08.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25490**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	799	799	3.1	96.9	95-100
22.4	6435	7234	28.4	71.6	60-80
11.2	4875	12109	47.5	52.5	40-60
4.75	3526	15635	61.3	38.7	25-40
2.36	3421	19056	74.8	25.2	15-30
0.600	4125	23181	90.9	9.1	8-22
0.075	1974	25155	98.7	1.3	0-8

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Job No.: CTCE/BBMP/W.No.07/HSN/QB/2014-15

14.08.2014

TEST REPORT

CLIENT	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements to Asphalting roads and drains at Sahakaranagara G Block, 9th Cross Roads in Ward No. 07, BBMP, Bangalore.
REFERENCE	:	AEE/(KOD.SUB.DIV)/ /2014-15 Dated: 04.08.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	14.08.2014

The results of the tests conducted on the bitumen sample.

Sl.No	Description	Test Method as per IS	Test Result	Requirement as per IS 73-2013
1	Penetration at 25^0c, 1/10 mm	IS :1203 -1978 (RA-2009)	84	80 to 100
2	Softening point, ^{0}c	IS :1205 -1978 (RA-2009)	46	Min.40
3	Ductility at 27^0c, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}c	IS :1209 -1978 (RA-2009)	292	Min. 220

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Job No.: CTCE/BBMP/W.No.07/HSN/SDBC/Bitumen/2014-15 16.08.2014

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to Asphalting roads and drains at Sahakaranagara G Block, 9th Cross Roads in Ward No. 07, BBMP, Bangalore.
REFERENCE	AEE/(KOD.SUB.DIV)/ /2014-15 Dated: 04.08.2014
SAMPLE I/D	29th Cross, Sahakaranagara G Block, Ward No. 07.
DATE OF TESTING	16.08.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474.5	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25.5	25.50
7. Bitumen content in %	5.10	5.10
8. Average	**5.10**	

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.07/HSN/SDBC/Gradation/2014-15 16.08.2014

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to Asphalting roads and drains at Sahakaranagara G Block, 9th Cross Roads in Ward No. 07, BBMP, Bangalore.
REFERENCE	AEE/(KOD.SUB.DIV)/ /2014-15 Dated: 04.08.2014
SAMPLE I/D	29th Cross, Sahakaranagara G Block, Ward No. 07.
DATE OF TESTING	16.08.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	22.64	4.77	4.77	95.23	90-100
4.75	249.65	52.61	57.38	42.62	35-51
2.36	56.32	11.87	69.25	30.75	24-39
1.18	58.27	12.28	81.53	18.47	15-30
0.3	28.32	5.97	87.50	12.50	9-19
0.075	40.13	8.46	95.96	4.04	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	33.15	6.99	6.99	93.01	90-100
4.75	257.46	54.26	61.25	38.75	35-51
2.36	54.15	11.41	72.66	27.34	24-39
1.18	40.57	8.55	81.21	18.79	15-30
0.3	26.89	5.67	86.87	13.13	9-19
0.075	37.45	7.89	94.77	5.23	3-8

Note:

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